

Course Title	Math-Grade 11 Core	
Code	MAT 300	
Terms 1, 2, & 3 AY 2014-2015		
Pre-requisites	<ul style="list-style-type: none"><li>• Create linear models, for sets of data, to solve problems.</li><li>• Use linear functions and inequalities to model and solve problems.</li><li>• Use quadratic functions to model problems and solve by factoring and graphing.</li><li>• Use systems of linear equations or inequalities to model and solve problems.</li><li>• Pythagorean theorem, trigonometric concepts and terminologies, and solving right angle triangle using Pythagorean theorem and laws of sines and cosines.</li></ul>	
Co-requisites	NA	
Course Description	This course is designed to build on algebraic and geometric concepts. It develops advanced algebra skills such solving different types of equations and inequalities, simplifying different types of expressions, graphing different types of functions. It includes the study of trigonometric, polynomial, inverses, radical, exponential, logarithmic, and rational functions, and covers different mathematical concepts, as; domain, range, trigonometric identities, remainder and factor theorems; the content of this course are important for students’ success on college mathematics entrance exams. Students who complete Algebra II are qualified to take pre-calculus next.	
Instructions	Study Format	Weight
	Theory	90%
	Practical	10%
Learning Outcomes		
<ul style="list-style-type: none"><li>• Graph and analyse the six trigonometric functions with special emphasis on the graphs of sine, cosine and tangent to solve problems.</li><li>• Demonstrate an understanding of inverse trigonometric functions.</li><li>• Students will establish trigonometric identities and use them to simplify trigonometric expressions and verify equivalence statements.</li><li>• Demonstrate an understanding of the Sum and Difference identities, Double-Angle identities, and Half-Angle Identities.</li><li>• Demonstrate an understanding of solving trigonometric equations.</li><li>• Demonstrate an understanding of how to perform operations with polynomials.</li><li>• Demonstrate an understanding of dividing polynomials.</li><li>• Solve polynomial equations</li><li>• Apply the remainder and factor theorems</li><li>• Apply the rational zero theorem</li><li>• Demonstrate an understanding of Inverse Functions and Relations</li></ul>		

- Demonstrate an understanding of Square Root Functions and Inequalities
- Demonstrate an understanding of rational exponents
- Demonstrate an understanding of solving radical equations and inequalities
- Graphing exponential and logarithmic functions
- Solving exponential and logarithmic equations
- Adding and subtracting rational functions
- Graphing rational functions
- Solving rational equations and inequalities

Term-1 Topics		Assignments & Assessments
Week	Title/ Module	
1 31Aug - 4Sep	12.7 Graphing Trigonometric Functions (5 periods) SAT (1 period)	Graded CW
2 7Sep - 11Sep	12.7 Graphing Trigonometric Functions (2 periods) 12.8 Translations of Trigonometric Graphs (3 periods) SAT (1 period)	Graded HW
3 14Sep - 18Sep	12.8 Translations of Trigonometric Graphs (5 periods) SAT (1 period)	Local Quiz-1
4 21Sep - 25Sep	12.9 Inverse Trigonometric Functions (6 periods)	Graded HW
5 28Sep - 20Oct	13.1 Trigonometric Identities (6 periods)	Graded CW
6 5Oct - 9Oct	13.1 Trigonometric Identities (2 periods) SAT (2 periods) Observing Arafat & Eid Al Adha Holiday (5Oct-7Oct)	Graded HW
7 12Oct - 16Oct	13.2 Verifying Trigonometric Identities (5 periods) SAT (1 period) System Wide Quiz	SWQ
8 19Oct - 23Oct	13.2 Verifying Trigonometric Identities (3 periods) 13.3 Sum and Difference of Angles Identities (2 periods) SAT (1 period)	Graded CW
9 26Oct - 30Oct	13.3 Sum and Difference of Angles Identities (6 periods)	Graded HW
10 2Nov - 6Nov	13.4 Double-Angle and Half-Angle Identities (5 periods) SAT (1 period)	Graded CW
11 9Nov - 13Nov	13.4 Double-Angle and Half-Angle Identities (3 periods) 13.5 Solving Trigonometric Equations (2 periods) SAT (1 period)	Local Quiz-2
12 16Nov - 20Nov	13.5 Solving Trigonometric Equations (6 periods)	Graded CW Project

13 23Nov-27Nov	5.1 Operations with Polynomials (5 periods) SAT (1 period)	Graded HW
14 30Nov-4Dec	5.2 Dividing Polynomials (5 periods) SAT (1 period)	
15 7Dec-11Dec	<b>EOT-1 Practical Exams</b> <b>Revision for term-1 Core topics</b>	
16 14Dec-18Dec	<b>EOT-1 Exams</b>	

Term-2 Topics		Assignments & Assessments
Week	Title/ Module	
1 4Jan – 8Jan	5.3 Polynomial Functions (5 periods) SAT (1 period)	Graded CW
2 11Jan – 15Jan	5.5 Solving Polynomial Equations (5 periods) SAT (1 period)	Graded HW SAT-Mock Exam-1
3 18Jan – 22Jan	5.6 The Remainder and Factor Theorem (5 periods) SAT (1 period)	Graded CW
4 25Jan – 29Jan	5.7 Roots and Zeros (6 periods) SAT (1 period)	Local Quiz-1
5 1Feb – 5Feb	5.8 Rational Zero Theorem (6 periods)	Graded HW
6 8Feb – 12Feb	6.1 Operations on Functions (3 periods) SAT (2 periods) System Wide Quiz-1	SWQ-1
7 15Feb – 19Feb	6.2 Inverse Functions and Relations (5 periods) SAT (1 period)	Graded CW
8 22Feb – 26Feb	6.3 Square root functions and inequalities (5 periods) SAT (1 period)	Graded HW
9 1Mar – 5Mar	6.6 Rational Exponents (5 periods) SAT (1 period)	Graded CW Project
10 8Mar – 12Mar	6.7 Solving Radical Equations and Inequalities (4 periods) SAT (2 periods)	Local Quiz-2
11 15Mar – 19Mar	6.7 Solving Radical Equations and Inequalities (3 periods) SAT (3 period)	Graded HW
12 22Mar – 26Mar	System Wide Quiz-2 EOT-2	SWQ-2

Term-3 Topics		Assignments & Assessments
Week	Title/ Module	
1 12Apr – 16Apr	7.1 Graphing Exponential Functions (5 periods) SAT (1 period)	Graded CW
2 19Apr – 23Apr	7.2 Solving Exponential Equations and Inequalities (5 periods) SAT (1 period)	Graded HW
3 26apr – 30Apr	7.3 Logarithms and Logarithmic Functions (5 periods) SAT (1 period)	Graded CW SAT-Mock Exam-2
4 3May – 7May	7.4 Solving Logarithmic Equations and Inequalities (5 periods) SAT (1 period)	Local Quiz-1
5 10May – 14May	7.5 Properties of Logarithms (5 periods) SAT (1 period)	Graded HW
6 17May – 21May	7.6 Common Logarithms (2 periods) 7.7 Base e and Natural Logarithms (4 periods)  System Wide Quiz	SWQ
7 24May - 28May	8.1 Multiplying and Dividing Rational Expressions (5 periods) SAT (1 period)	Graded CW
8 31May – 4June	8.2 Adding and Subtracting Rational Expressions (6 periods)	Graded HW
9 7June – 11June	8.4 Graphing Rational Functions (5 periods) SAT (1 period)	Local Quiz-2
10 14June – 18June	8.6 Solving Rational Equations and Inequalities (5 periods) SAT (1 period)	Graded CW Project
11 21June – 25June	EOT-1 Practical Exams Revision for term-3 Core topics	
12 28June – 2July	EOT-3 Exams	

## Learning Strategies

### Inquiry based learning

- Asking questions
- Developing and using models
- Planning and carrying out investigations
- Analysing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations (science) and designing solutions (engineering)
- Engaging in argument from evidence
- Obtaining, evaluating and communicating information

### Lab investigations

Lab reports will be due after each lab activities. Lab reports should reflect:

- ✓ Steps of the scientific method. [Question, hypotheses, variables, procedure, results, data analysis, conclusion, source of error and extended learning]
- ✓ Technology integration
- ✓ Engaging in cooperative learning

### Project Based Learning

Students are expected to actively participate in groups to achieve a project related to specific learning outcomes.

## Assessment

Term 1			30%
	Type		Percentage
Formative	Homework		5%
	Class work & task contribution		5%
	Lab/ Projects		10%
	School based quizzes		15%
Summative	SWQ		15%
	EOT		50%

Term 2			20%
Formative	Homework		5%
	Class work & task contribution		5%
	Lab/ Projects		10%

	School based quizzes	15%
Summative	SWQ1	30%
	SWQ2	35%

<b>Term 3</b>		<b>20%</b>
Formative	Homework	5%
	Class work & task contribution	5%
	Lab/ Projects	10%
	School based quizzes	15%
Summative	SWQ	65%

<b>End of Year Exam</b>	End of Year Exam= 40% of specific topics from T1 & T2 and 60 % from T3.	<b>30%</b>
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### Class Policies

Homework assignments	<p>Homework problems will be assigned regularly. It is essential that you do the problems to the best of your ability. Copying them from others constitutes plagiarism and will do no one any good. The answers will be provided to you in most cases as a way for you to check your understanding. Homework problem sets will generally be worth 5%. A weekly quiz will be conducted to ensure your understanding.</p> <p>Note that the homework total score must reflect the submission time and marks must be deducted as the following:</p> <ul style="list-style-type: none"> <li>Late by one day =95% * score</li> <li>Late by 2 days =90% * score</li> <li>Exceeds two days =50% * Score</li> </ul>
Attendance	Students are expected to attend their classes regularly and without delay. More than 5 minutes delay will turn in missing points from the attendance make considered in the classwork accumulative mark.
Missing school-based quizzes	If a student missed an ongoing formative assessment, it is his responsibility to provide medical excuse and follow up with the teacher to repeat the exam. If medical excuse was not provided the mark will be considered zero for that specific quiz.
Academic integrity	ATHS is a community of learners joined together by search for knowledge; academic integrity is the central value in this community characterized by upholding values, codes of behaviour, honesty, free from lies and deception. Ultimate

	<p>ATHS community properties are the values of fairness, respect, trust and responsibility.</p> <p>Academic dishonesty refers to cheating and plagiarism which is student receiving or providing unauthorized assistance during an academic activity. The academic activity is any exam setting or submitting academic reports and projects. Students are responsible for the integrity of their actions and must be willing to accept the consequences of these actions. If the teacher detected academic dishonesty, he will discuss the issue with the students and if it was clarified he will adjust marking accordingly.</p>
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#### Course References :

Algebra 2 --- ISBN: 978-0-07-895266-1